



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/757,891

01/15/2004

Gianpiero Santacatterina

IT20020057

4773

173

7590

07/14/2008

WHIRLPOOL PATENTS COMPANY - MD 0750
500 RENAISSANCE DRIVE - SUITE 102
ST. JOSEPH, MI 49085

EXAMINER

NORTON, JENNIFER L

ART UNIT

PAPER NUMBER

2121

MAIL DATE

DELIVERY MODE

07/14/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/757,891
Filing Date: January 15, 2004
Appellant(s): SANTACATTERINA ET AL.

Michael F. Kelly
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 25 June 2008 appealing from the Office action mailed 19 February 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the Examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

Appellants filed a Notice of Appeal of claims 1-14 on June 29, 2006. On January 10, 2008 Appellants filed a Request for Continued Examination under 37 CFR § 1.114. As the request was filed after an appeal had been taken, but prior to a decision the RCE was treated as a request to withdraw the appeal and subsequently the Board of Patent Appeals and Interferences ("the Board") in Appeal No. 2007-2385 on February 28, 2008 dismissed the Appeal.

Examiner Note: The Examiner notes Appellant's statement with regards to Related Appeals and Interferences is substantially correct, except for Appellant's statement, "Appellants filed a Notice of Appeal of claims 1-14 on June 26, 2006."; the Notice of Appeal of claims 1-14 was filed on June 29, 2006.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,572,438	Ehlers et al.	01-1995
4,612,619	Culp	08-1984
6,519,509	Nierlich et al.	06-2000

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1-2, 4, 6, 7, 9 and 11-14 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,572,438 (hereinafter Ehlers).
2. Claims 3 and 8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ehlers in view of U.S. Patent No. 4,612,619 (hereinafter Culp).
3. Claims 5 and 10 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ehlers in view of U.S. Patent No. 6,519,509 (hereinafter Nierlich).
4. The following ground(s) of rejection are applicable to the appealed claims and were set forth in the Final Office Action mailed 19 February 2008, reproduced below for completeness:

Claims 1, 2, 4, 6, 7, 9 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,572,438 (hereinafter Ehlers).

As per claim 1, Ehlers discloses a process for managing total power demand absorbed of one or more appliances, the process comprising the steps of:

assessing for each appliance an energy consumption profile (Fig. 4, element 48) of the one or more appliances corresponding to its setting (col. 3, lines 61-67, col. 5,

Art Unit: 2100

lines 45-49, col. 10, lines 17-20 and 25-31, col. 11, lines 30-32 and 53-59, col. 12, lines 21-59, col. 13, lines 64-67 and col. 14, lines 1-14);

summing the energy consumption profiles to determine if their sum leads to one or more peaks in power demand (col. 2, lines 58-65, and col. 3, lines 1-3 and 36-48, col. 5, lines 45-49, col. 13, lines 46-63, col. 14, lines 60-67, col. 15, lines 1-11, col. 23, lines 32-34 and col. 30, lines 5-8); and

providing one or more new energy consumption profiles to the one or more appliances for leveling the total power absorbed by the one or more appliances (col. 3, lines 36-48 and col. 25, lines 9-31).

As per claim 2, Ehlers discloses the appliances are controlled through on-off switching (col. 25, lines 9-16) and wherein the appliances are synchronized for organizing the on-off switching of single appliances or components in order to limit peaks of power demand (col. 2, lines 58-67, col. 3, lines 1-3 and 36-48 and col. 25, lines 19-31).

As per claim 4, Ehlers discloses at least one of the new energy consumption profiles is based on a delayed switching on one of the appliances or components thereof (col. 15, lines 39-46 and Fig. 4, element 34F).

As per claim 6, Ehlers discloses a system for managing and curtailing power absorbed of one or more appliances (col. 5, lines 45-49 and col. 8, lines 13-15 and col. 11, lines 30-32), each appliance having an user interface (Fig. 1, element 22) connected to a control unit for setting working parameters of the appliance (col. 4, lines 50-53), wherein the control unit is adapted to assess, for each appliance, an energy consumption profile corresponding to its setting (col. 3, lines 61-67, col. 5, lines 45-49, col. 10, lines 17-20 and 25-31, col. 11, lines 53-59, col. 12, lines 21-59, col. 13, lines 64-67 and col. 14, lines 1-14), the control unit being adapted to sum the energy consumption profiles in order to check if their sum leads to one or more peaks in the power demand and to provide one or more new energy consumption profiles in order to level or reduce the total power absorbed by the one or more appliances or components thereof (col. 2, lines 58-65, and col. 3, lines 1-3 and 36-48, col. 5, lines 45-49, col. 13, lines 46-63, col. 14, lines 60-67, col. 15, lines 1-11, col. 23, lines 32-34 and col. 30, lines 5-8).

As per claim 7, Ehlers discloses appliances controlled through on-off switching further comprises a control circuit (col. 25, lines 9-16) adapted to synchronize the appliances for organizing the on-off switching of single appliances in order to limit peaks of energy demand (col. 2, lines 58-67, col. 3, lines 1-3 and 36-48 and col. 25, lines 19-31, col. 30, lines 5-8).

As per claim 9, Ehlers discloses the control unit is adapted to provide one or more new energy consumption profiles based on a delayed switching on one of the appliances or components thereof (col. 15, lines 39-46 and Fig. 4, element 34F).

As per claim 11, Ehlers discloses leveling the total power absorbed comprises reducing the magnitude of the peaks of the total power absorbed (col. 30, lines 5-8).

As per claim 12, Ehlers discloses leveling the total power absorbed comprises maintaining the summed energy consumption at approximately an average energy consumption. (col. 29, lines 57-67 and col. 30, lines 1-13).

As per claim 13, Ehlers discloses reducing the total power absorbed by the one or more appliances or components comprises reducing the magnitude of the peaks of the total power absorbed (col. 30, lines 5-8).

As per claim 14, Ehlers discloses reducing the total power absorbed by the one or more appliances or components comprises maintaining the summed energy consumption at approximately an average energy consumption (col. 29, lines 57-67 and col. 30, lines 1-13).

Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehlers in view of U.S. Patent No. 4,612,619 (hereinafter Culp).

As per claim 3, Ehlers does not expressly teach the process wherein each on-off switching is based on a duty cycle and wherein a synchronizer puts in a sequence all the different duty cycles starting from the one related to the load with a higher power level, then organizes them inside a selected period of control, each duty cycle being placed in a precise position inside the period of control to avoid unnecessary simultaneous activation of loads.

Culp teaches to a process for leveling energy consumption of loads being controlled (Fig. 1, element 10) by a duty cycle routine, the loads having on and off times within a predetermined period of time for a plurality of loads (abstract). The load first turned off during the upcoming period or interval is the load having the largest off time kilowatt rating. The next load to be turned off is the load with the smallest off time kilowatt rating. The next load to be turned off is the load having the next largest off time kilowatt rating, the next load to be turned off is the load having the next smallest off time kilowatt rating, and so on. The times between T1 and T2, T3 and T4, T5 and T6 and so on ending with the time between TN and the end of the period, are the gap times between corresponding adjacent off times. The gap times are substantially equal and are spread uniformly through the period (Fig. 3, col. 3, lines 4-16).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a process

Art Unit: 2100

for leveling energy consumption of loads being controlled by a duty cycle routine, the loads having on and off times within a predetermined period of time for a plurality of loads. The load first turned off during the upcoming period or interval is the load having the largest off time kilowatt rating. The next load to be turned off is the load with the smallest off time kilowatt rating. The next load to be turned off is the load having the next largest off time kilowatt rating, the next load to be turned off is the load having the next smallest off time kilowatt rating, and so on. The times between T1 and T2, T3 and T4, T5 and T6 and so on ending with the time between TN and the end of the period, are the gap times between corresponding adjacent off times. The gap times are substantially equal and are spread uniformly through the period. It is desirable, during a load cycling routine, to spread the off times uniformly throughout the period to minimize the energy consumption at any given instant in time during the interval. Thus, it is not desirable to have all of the loads on at a given instant of time (col. 1, lines 56-61).

As per claim 8, Ehlers does not expressly teach the system wherein each on-off switching is based on a duty cycle and wherein a synchronizer is adapted to put in a sequence all the different duty cycles starting from the one related to the load with a higher power level, and it-is-adapted-to organize them inside the selected period of control, each duty cycle being placed in a precise position inside the period of control to avoid unnecessary simultaneous activation of loads.

Culp teaches to a system for leveling energy consumption of loads being controlled (Fig. 1, element 10) by a duty cycle routine, the loads having on and off times within a predetermined period of time for a plurality of loads (abstract). The load first turned off during the upcoming period or interval is the load having the largest off time kilowatt rating. The next load to be turned off is the load with the smallest off time kilowatt rating. The next load to be turned off is the load having the next largest off time kilowatt rating, the next load to be turned off is the load having the next smallest off time kilowatt rating, and so on. The times between T1 and T2, T3 and T4, T5 and T6 and so on ending with the time between TN and the end of the period, are the gap times between corresponding adjacent off times. The gap times are substantially equal and are spread uniformly through the period (Fig. 3, col. 3, lines 4-16).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a system for leveling energy consumption of loads being controlled (Fig. 1, element 10) by a duty cycle routine, the loads having on and off times within a predetermined period of time for a plurality of loads (abstract). The load first turned off during the upcoming period or interval is the load having the largest off time kilowatt rating. The next load to be turned off is the load with the smallest off time kilowatt rating. The next load to be turned off is the load having the next largest off time kilowatt rating, the next load to be turned off is the load having the next smallest off time kilowatt rating, and so on.

The times between T1 and T2, T3 and T4, T5 and T6 and so on ending with the time between TN and the end of the period, are the gap times between corresponding adjacent off times. The gap times are substantially equal and are spread uniformly through the period. It is desirable, during a load cycling routine, to spread the off times uniformly throughout the period to minimize the energy consumption at any given instant in time during the interval. Thus, it is not desirable to have all of the loads on at a given instant of time (col. 1, lines 56-61).

Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehlers in further in view of U.S Patent No.: 6,519,509 (referred to as Nierlich hereinafter).

As per claim 5, Ehlers does not expressly teach the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles is provided, such signal being adapted to be used by a control unit which supervises more appliances and/or a utility company in order to have a forecast for future total energy consumption on the mains.

Nierlich teaches to a process of future energy consumption profiles (Fig. 3, element 48) that includes a level of kilowatt reduction (col. 8, lines 35-45), provides incremental and aggregate load forecast data over a prescribed period (Fig. 3, element 50) and is fully compatible with other electronic devices and software such as devices

and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis (col. 8, lines 46-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a process of future energy consumption profiles that includes a level of kilowatt reduction, provides incremental and aggregate load forecast data over a prescribed period and is fully compatible with other electronic devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis; which is useful for anticipating demand peaks and curtailment scheduling (col. 8, lines 52-53).

As per claim 10, Ehlers does not expressly teach the control unit is adapted to provide, on the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles, such signal being adapted to be used by a control unit supervising more appliances and/or a utility company in order to have a forecast for future total energy consumption on the mains.

Nierlich teaches to the future energy consumption profiles (Fig. 3, element 48) that includes a level of kilowatt reduction (col. 8, lines 35-45), provides incremental and aggregate load forecast data over a prescribed period (Fig. 3, element 50) and is fully compatible with other electronic devices and software such as devices and software

that graphically illustrate variables using histograms and plots and/or perform statistical analysis (col. 8, lines 46-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include future energy consumption profiles that includes a level of kilowatt reduction, provides incremental and aggregate load forecast data over a prescribed period and is fully compatible with other electronic devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis; which is useful for anticipating demand peaks and curtailment scheduling (col. 8, lines 52-53).

(10) Response to Argument

Appellant's arguments (regarding VII.), filed on 25 June 2008, have been fully considered but they are not persuasive.

1. Rejection Under 35 U.S.C 102(b)

Group. A Claims 1, 2, 4, 11 and 12:

a. In regards to Appellant's argument that that Ehlers does not disclose, "assessing for each appliance an energy consumption profile, which is the power absorbed by the appliance as a function of time during operation of the appliance, summing the energy consumption profiles of the appliances to determine if their sum

leads to one or more peaks in power demand, and providing new energy consumption profiles to the appliances for leveling the total power absorbed by the one or more appliances” (see Brief, page 10, paragraph 2), the Examiner respectfully disagrees.

As indicated in the Final Office Action, mailed on 19 February 2008, (see Response to Arguments, pgs. 12-20, Group A. Clams 1, 2, 4, 11, and 12, section a.), Ehlers indeed discloses a process for managing an energy consumption profile as indicated in the above argument.

(col. 10, lines 16-20) “The CPEU_PGM program is the main control program. It initiates load (current and power) monitoring, stores historical data, performs watt-hour meter reading, executes requested load turn-on/turn-off events and monitors communications from the utility company.”

(col. 11, lines 53-59) “Before returning to a description of the CPEU_ PGM modules, it should be understood that information about the loads at the customer premises and about the energy and power usage of those loads and of the premises as a whole is maintained in a data structure or structures indicated collectively at 38 (FIG. 4) and physically located in memory 18-B.”

(col. 12, lines 21-59) “A second data structure 44 (FIG. 6), DEVICE, is arranged as a table having one entry per load device to be monitored or controlled. For each load, the data structure preferably maintains substantially the following information

Art Unit: 2100

in separate fields: the power the device normally consumes when it is turned on, watts, 44A; the current the device normally consumes when it is turned on, amps, 44B; the voltage across the device when it is turned on, volts, 44C; the power factor for the device if it is a reactive load, power factor, 44D; a code indicating the kind of load the device is--e.g., resistive, inductive or fluorescent, load_type, 44E; the priority code for the device, to be used in load shedding operations (explained below), priority, 44F; a first address code, code_number, 44G, which may be used as the "number" field of the device address for an X10 type of device; a second address code, code_letter, 44H, which may be used as the "letter" field of the device address for an X10 type of device; a third address code, cebus._hc, 44I, which may be used as the house code for a CEBus type of device; a fourth address code, cebus_unit, 44J, which may be used as the unit number for a CEBus type of device; a description of the device (text) supplied by the customer, desc, 44K; a textual statement of the device location as supplied by the customer, location, 44L; the current on/off or other status of the device, status, 44M; **a count representing how long (cumulatively) the device has been turned on for the current day, current_hours, 44N**; a count representing how long (cumulatively) the device has been turned on for the current month, mtd_hours, 44O; a count representing how long the device was turned on during the prior month, last_month, 44P; a count representing how many hours the device has been turned on for the year, to the current date, ytd_hours, 44Q; and a flag to designate, for a CEBus device, whether it will give an ACK signal, cebus_noack,

44R. Additional fields may be added as required and any of the foregoing fields not required in a particular embodiment (other than the illustrated embodiment) may be omitted, of course, the data structures shown in the drawing being illustrative only. For example, multiple instances of pairs of fields 44A and 44B may be provided for those devices which are capable of multiple consumption levels (e.g., multispeed motors)."

(col. 13, lines 64-67) and (col. 14, lines 1-14) "The DEVICE HISTORY table 54 (FIG. 9) (one per monitored device, which preferably is named in the table at 55A) stores, per measurement interval, a record containing data arranged in a predetermined pattern. To more graphically illustrate the data structure's configuration, it is shown diagrammatically, rather than using C code. Following the device name, device no. (55A), two consecutive records 54A and 54B are shown. Each record includes fields in which are recorded one or more of the following: the measured voltage, volts, 55B; in-phase current, current(in-phase), 55C; reactive current, current(reactive), 55D; **kwh consumed in the interval, kwh, 55E; kvah consumed in the interval, kvah, 55F**; and, for reactive loads, kvarh consumed in the interval, kvarh, 55G. If the address in the table for the record (i.e., the first entry thereof) correlates (via an indexing scheme, for example) with the date and time of the table entry, it is not necessary to record explicitly as part of the record the date and time, as they can be calculated."

Ehlers discloses *"summing the energy consumption profiles of the appliances to determine if their sum leads to one or more peaks in power demand"* in (col. 12, lines 21-59) "A second data structure 44 (FIG. 6), DEVICE, is arranged as a table having one entry per load device to be monitored or controlled. For each load, the data structure preferably maintains substantially the following information in separate fields: the power the device normally consumes when it is turned on, watts, 44A; the current the device normally consumes when it is turned on, amps, 44B; the voltage across the device when it is turned on, volts, 44C; the power factor for the device if it is a reactive load, power factor, 44D; a code indicating the kind of load the device is--e.g., resistive, inductive or fluorescent, load_type, 44E; the priority code for the device, to be used in load shedding operations (explained below), priority, 44F; a first address code, code_number, 44G, which may be used as the "number" field of the device address for an X10 type of device; a second address code, code_letter, 44H, which may be used as the "letter" field of the device address for an X10 type of device; a third address code, cibus._hc, 44I, which may be used as the house code for a CEBus type of device; a fourth address code, cibus_unit, 44J, which may be used as the unit number for a CEBus type of device; a description of the device (text) supplied by the customer, desc, 44K; a textual statement of the device location as supplied by the customer, location, 44L; the current on/off or other status of the device, status, 44M; **a count representing how long (cumulatively) the device has been turned on for the current day, current_hours, 44N**; a count

representing how long (cumulatively) the device has been turned on for the current month, mtd_hours, 44O; a count representing how long the device was turned on during the prior month, last_month, 44P; a count representing how many hours the device has been turned on for the year, to the current date, ytd_hours, 44Q; and a flag to designate, for a CEBus device, whether it will give an ACK signal, cebus_noack, 44R. Additional fields may be added as required and any of the foregoing fields not required in a particular embodiment (other than the illustrated embodiment) may be omitted, of course, the data structures shown in the drawing being illustrative only. For example, multiple instances of pairs of fields 44A and 44B may be provided for those devices which are capable of multiple consumption levels (e.g., multispeed motors)."

(col. 14, lines 60-67) and (col. 15, lines 1-11) "The first microcomputer 18 also can communicate with **the power company via a suitable communications interface 16 and associated channel to receive real-time energy rate broadcasts, load shedding requests and the like**, and to send to the utility company power outage reports, low voltage condition reports, customer usage reports and selected other data."

(col. 3, lines 36-48) "In view of the foregoing, it should be apparent that there exists a need for an automation system for monitoring energy (power) consumed not only by a residential or commercial utility customer as a whole, but also by specific

loads operated by the customer. A need further exists for an automation system which is easily operated by a utility customer to permit the customer to control operation of such loads. Desirably, the system will permit the customer to program loads to function or not function in response to energy rate information supplied by the power company and parameters supplied by the customer. In addition, there exists a need for a system that also permits the power company to control selectively such loads."

In addition, per the Merriam Webster's Dictionary of Synonyms, page 13, the term "summed" is a synonym of "accumulated". Ehlers discloses "a count representing how long (cumulatively) the device has been turned on for the current day, current_hours, 44N", hence meeting the Appellant's claimed limitation. Further, the Examiner notes the preamble of claim 1 recites, "a process for managing total power absorbed of **one or more appliances**", which encompasses the summation of energy consumption profiles of a single or plurality of appliances.

Ehlers discloses *"providing new energy consumption profiles to the appliances for leveling the total power absorbed by the one or more appliances"* in (col. 25, lines 9-31) "To shed a load, all that is necessary is to broadcast **a command for a device** at a specific address to turn off or for all devices of a particular priority level or levels or type to turn off. Since the system possesses distributed intelligence in the form of a programmable microcontroller in each load control module, the controller can

determine whether its associated load meets the criteria established in the **message** and, if so, turn off the load. To turn on all shed loads, a predetermined message can be broadcast over the network. Alternatively, **messages can be addressed by the first microcomputer to specific devices to be turned off or to which power is to be restored.** As yet another alternative, the microcontroller can be programmed to restore power to its associated load after a predetermined time unless the shedding request is renewed. This latter approach is useful in reducing message traffic on the network. It also safeguards against failure to receive a power restoration message. In this manner, it can be assured, for example, that a refrigerator is not turned off for longer than a preset interval (assuming power is not lost). As yet another alternative, the message initiating the load shedding may contain a datum signifying the interval for which the load is to be shed or the time it should be automatically reconnected to the mains."

Hence, the new energy consumption profiles are disclosed in Ehlers as a "command/message" to the devices in Ehlers to provide load shedding which is means to reduce peak demand charges per the Asian Electronics Ltd.'s Glossary.

In summary, Ehlers discloses *"assessing for each appliance an energy consumption profile, which is the power absorbed by the appliance as a function of time during operation of the appliance, summing the energy consumption profiles of the appliances to determine if their sum leads to one or more peaks in power demand,*

and providing new energy consumption profiles to the appliances for leveling the total power absorbed by the one or more appliances” by monitoring through measuring the energy consumed at a given time or interval for a given load (i.e. appliance), energy consumption data is collectively maintained in a data structure for particular loads and the premise as a whole. Thus, the Appellant’s energy consumption profile is the data stored in the data structure that is maintained for each load and the entire premise as disclosed in the Ehlers reference. The Examiner for matters of simplicity, has used the physical representation of Fig. 4, element 38 of Ehlers to represent “energy consumption profiles” (i.e. energy consumption data) which are disclosed within Fig. 4, element 38.

b. In response to Appellant's argument that the references fail to show certain features of Appellant’s invention, it is noted that the features upon which Appellant relies (i.e., “In the Application, “energy consumption profile” has a very specific meaning and refers to the **future power consumption** of the appliance over time.” (see Brief, page 10, paragraph 3 - page 11, paragraph 1)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Furthermore, the Appellant offers two different definitions for “energy consumption profile” on page 10, paragraph 2 of the Brief, the Appellant states, “an

energy consumption profile, which is the power absorbed by the appliance as a function of time during operation Of the appliance, summing the energy consumption profiles of the appliances to determine if their sum leads, to one or more peaks in power demand, and providing new energy consumption profiles to the appliances for leveling the total power absorbed by the one or more appliances."; and then on page 10, paragraph 3 - page 11, paragraph 1 of the Brief, the Appellant states, energy consumption profile" has a very specific meaning and refers to the **future power consumption** of the appliance over time." The claimed limitation of "energy consumption profiles" in claims 1, 2, 4, 11 and 12 is meet by Ehlers under Appellant's definition of energy consumption profile "is the power absorbed by the appliance as a function of time during operation of the appliance, summing the energy consumption profiles of the appliances to determine if their sum leads, to one or more peaks in power demand, and providing new energy consumption profiles to the appliances for leveling the total power absorbed by the one or more appliances.". With respect to Appellant reference to the energy consumption profile refers to "future power consumption", the Examiner has interpreted this limitation to as reference to "future energy consumption profiles" of claims 5 (dependent of claims 1 and 4) and 10 (dependent of claims 6 and 9), that were rejected under 35 U.S.C 103(a) as being obvious over Ehlers in view of Nierlich.

- c. In regards to Appellant's argument that that Ehlers does not disclose,

Art Unit: 2100

“future power consumption” (see Brief, page 11, paragraph 4 and page 12, paragraph 1), the Examiner recognizes the Appellant has not accounted for the combination of Ehlers and Nierlich under 35 U.S.C 103(a) for this limitation as set forth in the Final Office Action, mailed on 19 February 2008, par. 19-21, as it relates to claims 5 and 10 and is reiterated below:

18. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehlers in view of U.S Patent No.: 6,519,509 (referred to as Nierlich hereinafter).

19. As per claim 5, Ehlers does not expressly teach the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles is provided, such signal being adapted to be used by a control unit which supervises more appliances and/or a utility company in order to have a forecast for future total energy consumption on the mains.

Nierlich teaches to a process of future energy consumption profiles (Fig. 3, element 48) that includes a level of kilowatt reduction (col. 8, lines 35-45), provides incremental and aggregate load forecast data over a prescribed period (Fig. 3, element 50) and is fully compatible with other electronic devices and software such as devices

and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis (col. 8, lines 46-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a process on the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles is provided, such signal being adapted to be used by a control unit which supervises more appliances and/or a utility company in order to have a forecast for future total energy consumption on the mains; which is useful for anticipating demand peaks and curtailment scheduling (col. 8, lines 52-53).

20. As per claim 10, Ehlers does not expressly teach the control unit is adapted to provide, on the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles, such signal being adapted to be used by a control unit supervising more appliances and/or a utility company in order to have a forecast for future total energy consumption on the mains.

Nierlich teaches to the future energy consumption profiles (Fig. 3, element 48) that includes a level of kilowatt reduction (col. 8, lines 35-45), provides incremental and aggregate load forecast data over a

prescribed period (Fig. 3, element 50) and is fully compatible with other electronic devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis (col. 8, lines 46-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a control unit adapted to provide, on the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles, such signal being adapted to be used by a control unit supervising more appliances and/or a utility company in order to have a forecast for future total energy consumption on the mains; which is useful for anticipating demand peaks and curtailment scheduling (col. 8, lines 52-53).

d. In regards to Appellant's argument that that Ehlers does not disclose, "an energy consumption profile in the system" (see Brief, page 11, paragraph 3 and page 12, paragraph 3), the Examiner respectfully disagrees.

The Examiner takes note that in the Final Office Action mailed on 19 February 2008, "the energy consumption profile" was indicated in error as element 48 in Fig. 4 in

Ehlers and not as Fig. 4, element 38 in Ehlers. Hence, "the energy consumption profile" is represented in Ehlers, Fig. 4, element 38.

Furthermore, the Ehlers' reference discloses "*an energy consumption profile in the system*" in Fig. 4, element 38 ("data structures") and (col. 11, lines 53-59) "Before returning to a description of the CPEU_ PGM modules, it should be understood that information about the loads at the customer premises and about the energy and power usage of those loads and of the premises as a whole is maintained in a data structure or structures indicated collectively at 38 (FIG. 4) and physically located in memory 18-B."

e. In response to Appellant's argument that the references fail to show certain features of Appellant's invention, it is noted that the features upon which Appellant relies (i.e., "the summing of energy consumption profiles, which are instantaneous energy consumptions at discrete times" (see Brief, page 14, paragraph 2- page 15, paragraph 1)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Furthermore, Ehlers discloses (col. 15, lines 31-35) "The Poll and Store module 34D polls the watt-hour meter to get a current reading of demand and accumulated energy consumption since the last prior poll; it also polls monitored devices and stores the results." Hence, "the current reading of demand" of the Poll and Store module is an energy consumption measurement at a discrete time.

f. In regards to Appellant's argument that that Ehlers does not disclose, "forward looking" energy consumption (see Brief, page 14, paragraph 2 and page 15, paragraph 1), the Examiner recognizes the Appellant has not accounted for the combination of Ehlers and Nierlich under 35 U.S.C 103(a) for this limitation as set forth in the Final Office Action, mailed on 10 February 2008, par. 19-21, as it relates to claims 5 and 10 and is reiterated below:

18. Claims 5 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ehlers in view of U.S Patent No.: 6,519,509 (referred to as Nierlich hereinafter).

19. As per claim 5, Ehlers does not expressly teach the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles is provided, such signal being adapted to be used by a control unit which supervises more appliances

and/or a utility company in order to have a forecast for future total energy consumption on the mains.

Nierlich teaches to a process of future energy consumption profiles (Fig. 3, element 48) that includes a level of kilowatt reduction (col. 8, lines 35-45), provides incremental and aggregate load forecast data over a prescribed period (Fig. 3, element 50) and is fully compatible with other electronic devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis (col. 8, lines 46-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a process on the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles is provided, such signal being adapted to be used by a control unit which supervises more appliances and/or a utility company in order to have a forecast for future total energy consumption on the mains; which is useful for anticipating demand peaks and curtailment scheduling (col. 8, lines 52-53).

20. As per claim 10, Ehlers does not expressly teach the control unit is adapted to provide, on the basis of the new leveled

energy consumption profiles, a signal related to future energy consumption profiles, such signal being adapted to be used by a control unit supervising more appliances and/or a utility company in order to have a forecast for future total energy consumption on the mains.

Nierlich teaches to the future energy consumption profiles (Fig. 3, element 48) that includes a level of kilowatt reduction (col. 8, lines 35-45), provides incremental and aggregate load forecast data over a prescribed period (Fig. 3, element 50) and is fully compatible with other electronic devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis (col. 8, lines 46-52).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Ehlers to include a control unit adapted to provide, on the basis of the new leveled energy consumption profiles, a signal related to future energy consumption profiles, such signal being adapted to be used by a control unit supervising more appliances and/or a utility company in order to have a forecast for future total energy consumption on the mains; which is useful for anticipating demand peaks and curtailment scheduling (col. 8, lines 52-53).

g. In regards to the Appellant's arguments that "Moreover, never during the prosecution has the combination of Ehlers and Nierlich been applied to claims 1, 2, 4, 11, and 12. To the extent that the Examiner is now attempting to do so, to the extent that the combination of Ehlers et al. '438 and Nierlich et al. '509 was improper for claims 5 and 10 it is also improper for claims 1, 2, 4, 11 and 12." (see Brief, page 16, paragraph 3) The Examiner respectfully disagrees.

It appears the Appellant has made arguments to a rejection for claims 1, 2, 4, 11 and 12 under 35 U.S.C. 103(a) as being obvious over the combination of Ehlers and Nierlich. The Examiner refers to the rejection of claims 1, 2, 4, 11 and 12 which were rejected under 35 U.S.C. 102(b) as being anticipated by Ehlers as set forth in paragraphs 5-7, 11 and 12 of the Final Office Action mailed on 19 February 2008.

h. In regards to the Appellant's argument, "Further the combination of Ehlers '438 and Nierlich '509 does not reach the claimed invention and claims 1, 2, 4, 11 and 12 are patentable over that combination. There is no evidence that Ehlers '438 combined with Nierlich '509 is forward looking (see Examiner's Answer, page 24, paragraph 4)." (see Brief page 16, paragraph 4 - page 17, paragraph 1) The Examiner respectfully disagrees.

It appears the Appellant has made arguments to a rejection for claims 1, 2, 4, 11 and 12 under 35 U.S.C. 103(a) as being obvious over the combination of Ehlers and Nierlich. The Examiner refers to the rejection of claims 1, 2, 4, 11 and 12 which were rejected under 35 U.S.C. 102(b) as being anticipated by Ehlers as set forth in paragraphs 5-7, 11 and 12 of the Final Office Action mailed on 19 February 2008.

i. In response to Appellant's argument that the references fail to show certain features of Appellant's invention, it is noted that the features upon which Appellant relies (i.e., "accurately predict forward power consumption based on appliance settings." (see Brief, page 16, paragraph 4 - page 17, paragraph 1)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In addition, the Appellant appears to be arguing against the references individually, wherein one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Furthermore, Ehlers (as per claims 1 and 6 rejected under 35 U.S.C 102 (b)) discloses assessing for each appliance an energy consumption profile (Fig. 4, element

48) of the one or more appliances corresponding to its setting (col. 3, lines 61-67, col. 5, lines 45-49, col. 10, lines 17-20 and 25-31, col. 11, lines 30-32 and 53-59, col. 12, lines 21-59, col. 13, lines 64-67 and col. 14, lines 1-14); and Nierlich (per claim 5 and 10 rejected under 35 U.S.C 103(a) as being obvious over Ehlers in view of Nierlich) teaches to a process of future energy consumption profiles (Fig. 3, element 48) that includes a level of kilowatt reduction (col. 8, lines 35-45), provides incremental and aggregate load forecast data over a prescribed period (Fig. 3, element 50) and is fully compatible with other electronic devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis (col. 8, lines 46-52).

Group B. Claims 6, 7, 9, 13 and 14:

j. In regards to the Appellant's argument that Ehlers fails to disclose "assessing for each appliance an energy consumption profile, summing the energy consumption profiles of the appliances to determine if their sum leads to one or more peaks in power demand, or providing new energy consumption profiles to the appliances for leveling the total power absorbed by the appliances" (see Brief, page 17, paragraphs 3-5), the Examiner respectfully disagrees.

The arguments presented in Group B are a reiteration of those of Group A, hence the Examiner refers to the above response of Group A and the argument of Group B as per claims 6, 7, 9, 13 and 14 herein as addressed.

B. Claims 3 and 8 are not obvious over U.S. Patent No. 5,572,438 to Ehlers et al. in view of U.S. Patent No. 4,612,619 to Culp.

k. The Examiner recognizes the Appellant has reiterated the limitations of claims 3 and 8, and has not presented arguments in this section (see Brief, page 18 paragraphs 1-3 and page 19, paragraphs 1-2). Therefore, the arguments set forth above are equally applicable here.

1. The combination of Ehlers '438 and Culp '619 is improper, which removes the basis for the obviousness rejection.

l. In response to Appellant's argument that there is no suggestion to combine the references (see Brief, page 19, paragraph 3 and page 21, paragraph 4 - page 22, paragraph 1), the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as indicated in the Final Office Action, mailed on 19 February 2008, Culp teaches "It is desirable, during a load cycling routine, to spread the off times uniformly throughout the period to minimize the energy consumption at any given instant in time

during the interval. Thus, it is not desirable to have all of the loads on at a given instant of time.” (col. 1, lines 56-61).

m. In regards to the Appellant’s argument that “the two systems (Ehlers and Culp) are incompatible (see Brief, page 21, paragraph 3), the Examiner respectfully disagrees.

Ehlers discloses in (col. 25, lines 9-31) “To shed a load, all that is necessary is to broadcast a command for a device at a specific address to turn off or for all devices of a particular priority level or levels or type to turn off. Since the system possesses distributed intelligence in the form of a programmable microcontroller in each load control module, the controller can determine whether its associated load meets the criteria established in the message and, if so, turn off the load. To turn on all shed loads, a predetermined message can be broadcast over the network. Alternatively, messages can be addressed by the first microcomputer to specific devices to be turned off or to which power is to be restored. As yet another alternative, the microcontroller can be programmed to restore power to its associated load after a predetermined time unless the shedding request is renewed. This latter approach is useful in reducing message traffic on the network. It also safeguards against failure to receive a power restoration message. In this manner, it can be assured, for example, that a refrigerator is not turned off for longer than a preset interval (assuming power is not lost). As yet another alternative, the message initiating the

load shedding may contain a datum signifying the interval for which the load is to be shed or the time it should be automatically reconnected to the mains.”

In summary, Ehlers uses a pre-established criteria to turn on and off loads, which does not excluded the pre-established criteria from incorporating the use of on-off switching based on a duty cycle, wherein the loads are turned on-off based on the magnitude of their power consumption. Appellant has not offered any evidence to establish that the references are not combinable and Culp clearly provides a reason for the combination. Thus, claims 3 and 8 are obvious over Ehlers and Culp.

n. In response to Appellant's argument that the Examiner's conclusion of obviousness is based upon improper hindsight reasoning (see Brief, page 22, paragraph 2), it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the Appellant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this regard, the motivation for the combination comes from the references and thus there is no impermissible hindsight.

2. The combination of Ehlers '438 and Culp '619 does not reach the claimed invention.

Group C. Claim 3

o. In regards to the Appellant's argument that Ehlers nor Culp disclose "the establishment of power consumption profiles for the power consuming devices, the summing of such profiles, or the generation of new energy consumption profiles for leveling the total power consuming devices" (see Brief, page 22, paragraph, 4 - page 23, paragraphs 2), the Examiner respectfully disagrees.

The arguments presented in Group C are a reiteration of those of Group A, hence the Examiner refers to the above response of Group A and the argument of Group C as per claim 3 herein as addressed.

Group D. Claim 8

p. In regards to the Appellant's argument, that Ehlers nor Culp disclose "the establishment of power consumption profiles for the power consuming devices, the summing of such profiles, or the generation of new energy consumption profiles for leveling the total power consuming devices" (see Brief, page 24, paragraph 1), the Examiner respectfully disagrees.

The arguments presented in Group D are a reiteration of those of Group A, hence the Examiner refers to the above response of Group A and the argument of Group D as per claim 8 herein as addressed.

C. Claims 5 and 10 are not obvious over U.S. Patent No. 5,572,438 to Ehlers et al. in view of U.S. Patent No. 6,519,509 et al.

q. The Examiner recognizes the Appellant has reiterated the limitations of claims 5 and 10, and has not presented arguments in this section (see Brief, page 25, paragraphs 2-5 and page 26, paragraph 1). Therefore, the arguments set forth above are equally applicable here.

1. The combination of Ehlers '438 and Nierlich '509 is improper, which removes the basis for the obviousness rejection.

r. In response to Appellant's argument that there is no suggestion to combine the references (see Brief, page 26 paragraph 3), the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as indicated in the Final Office Action, mailed on 19 February 2008, Nierlich teaches "This feature is useful for anticipating demand peaks and curtailment scheduling." (col. 8, lines 52-53).

s. In regards to the Appellant's argument, "there would be no

motivation to consider modifying the system of Ehlers '438 with a system that simply does the same, i.e. the system of Nierlich '509" (see Brief, page 26, paragraph 3 - page 27, paragraph 1), the Examiner respectfully disagrees.

This argument in itself supports and defends the Examiner's argument that there is motivation to combine, not only because motivation to combine is disclosed in Nierlich, but since the Appellant admits by his own argument that the two systems of Ehlers and Nierlich perform the same functions. It may be that Appellant is arguing that all of Nierlich must be bodily incorporated into Ehlers, this is not the rejection that was made. However, even if Ehlers were bodily incorporated into Nierlich, the resultant device would be operable and the functionality of each invention is complementary.

For convenience, col. 8, lines 35-52 of Nierlich is recited below:

"Preferably, the load reduction records 48 also includes attributes such as (1) the level of kilowatt reduction; (2) the trigger price at which a decision to displace a load, activate a generator, or contact a control system occurs; (3) the number of days, years, and hours within a day a load can be switched off-line, a generator can be activated, or a controller contacted; (4) the notification lead time needed before a curtailment event can occur; and (5) whether the load, generator, or control system is manually or automatically activated or deactivated.

Preferably, the load-forecast records 50 provide incremental and aggregate load forecast data over a prescribed period that include data that can be automatically imported into the CCC 26 and is fully compatible with other electronic devices and software such as devices and software that graphically illustrate variables using histograms and plots and/or perform statistical analysis. This feature is useful for anticipating demand peaks and curtailment scheduling."

t. In response to Appellant's argument that the Examiner's conclusion of obviousness is based upon improper hindsight reasoning (see Brief, page 27, paragraph 2), it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the Appellant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). In this regard, the motivation for the combination comes from the references and thus there is no impermissible hindsight.

2. The combination of Ehlers '438 and Nierlich '509 does not reach the claimed invention.

Group D. Claim 5

u. In regards to the Appellant's argument that Ehlers nor Nierlich disclose "the summing of power consumption profiles for the power consuming devices, or the generation of new energy consumption profiles for leveling the total power consuming devices" (see Brief, page 27, paragraph 4), the Examiner respectfully disagrees.

The arguments presented in Group D are a reiteration of those of Group A, hence the Examiner refers to the above response of Group A and the argument of Group D as per claim 5 herein as addressed.

Group E. Claim 10

V. In regards to the Appellant's argument that Ehlers nor Nierlich disclose "the summing of power consumption profiles for the power consuming devices, or the generation of new energy consumption profiles for leveling the total power consuming devices" (see Brief, page 28, paragraph 2) the Examiner respectfully disagrees.

The arguments presented in Group E are a reiteration of those of Group A, hence the Examiner refers to the above response of Group A and the argument of Group E as per claim 10 herein as addressed.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the Examiner in the Related Appeals and Interferences section of this Examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Jennifer L. Norton
AU 2121
Conferees:

/Jennifer L. Norton/

/Albert DeCady/
Supervisory Patent Examiner, Art Unit 2121
Eddie Lee
TQAS/Appeals Specialist, TC 2100
/Eddie C Lee/
Supervisory Patent Examiner, TC 2100